THE AMERICAN JOURNAL

OF

OPHTHALMOLOGY.

VOL. XVIII. OCTOBER, 1901. No. 10.

ORIGINAL ARTICLES.

A NEW SET OF LACRYMAL SOUNDS.

By CHAS. H. BEARD, M.D.,

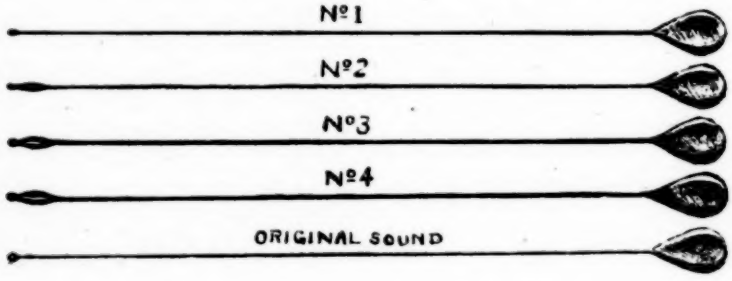
CHICAGO,

Surgeon to the Illinois Charitable Eye and Ear Infirmary.

ABOUT a year ago, wishing one day to probe the lacrymal canal in a case of simple epiphora, it so happened, while looking around for a suitable instrument, that my eye lighted on an ordinary gold temple-wire of a pair of spectacles. It struck me at once that there was the very thing. The wire chanced to be of the lightest grade—quite elastic—and the ball at the end was of the tiniest and smoothest. After straightening and thoroughly cleansing my improvised sound, and slightly dilating the punctum, I proceeded to try it. Not only was I delighted but even astonished, both on my own and the patient's account. The little knob seemed to guide the wire through the windings of that canal like a thing of intelligence.

As a result of this experience I had fashioned, by a manufacturing jeweler, the set of sounds represented *actual size* in the accompanying illustration. Numbers 1 and 2 it was thought best to have made of ten carat gold, as this has greater strength, hardness and elasticity than the finer metal, to say nothing of the lesser cost; whereas numbers 2 and 4,

being of larger size, both as to spindle and wire, and destined for other service—namely, only in cases where Bowman's operation has already been performed—are made of eighteen carat gold. The old spectacle wire was of ten carat gold, and as it proved to be so admirably adapted to its new use I had it cut to the desired length and a handle put on to make it conform to the others. As will be seen by the cuts, it is identical with the one shown at the top, excepting that its knob is of somewhat greater diameter—1. millimeter—and perfectly round, while No. 1 is slightly elongated. These two are excellent for purposes of exploration of the lacrymal canal; but for systematic treatment, as, for example, of stenosis from swollen lining, from cicatricial bands, etc., those with fusiform terminals are to be preferred. They pass both backwards and forwards through the narrow places with much



greater ease as regards both operator and operated, and they can be insinuated more gingerly and certainly into such places with the view to local dilatation. Indeed, one of the chief advantages in the employment of these sounds is one's ability, owing to the peculiar form of the instrument, to feel along, as it were, for obstructions, and thus to locate and deal with them by passing the spindle back and forth through them—a procedure not possible with rigid sounds or those that are cylindrical and of uniform or nearly uniform diameter throughout. The friction, instead of being *all the way long*, is practically confined to the enlarged portion only, yet the *effect* is that of a probe of the diameter of said enlargement; hence traumatism and discomfort are both minimized.

In the manufacture of these sounds the strictest attention should be given to minute detail of form. To mention a few

points, for instance, the bulb on No. 1 and the entering or guiding bulb on No. 2 should not exceed $^3/_5$ millimeter in diameter, and both should be neatly rounded. Then, where bulb joins spindle, and where spindle joins shaft, there should never be an abrupt curve, but one part should be made to pass into the other by almost insensible degrees. As to the wire for the smaller sounds, it cannot be too springy, but ought not to be of greater thickness than $^2/_5$ of a millimeter; that of No. 1 could well be just short of that. The broad flat handle serves to indicate the direction of the other end of the sound when one chooses to give a certain bend or curve to the shaft. The two smaller sounds are introduced without previous dilatation of the punctum.

I have found these sounds a real help in certain cases where I had become discouraged with the older kinds, and I trust my colleagues may adopt them with benefit. "Every little helps," and we do need help in our efforts to relieve lacrymal troubles—deplorable things that they are.

Muscular Spasm Without Loss of Vitreous.—(Reported by Andrew B. Gloninger, M.D., in *Am. Medicine.*) The following case is unique from the fact that no loss of vitreous followed a condition of muscular spasm of the most violent nature:

After routine preparatory treatment for four days an iridectomy was done and the lens extracted. Three hours after operation I found patient in epileptiform convulsions, tetanoid in character, and in position of opisthotonos. He was entirely unconscious and would have thrown himself on the floor if the nurse had not been at the bedside; it was necessary to apply restraining straps to keep him in bed. A hypodermic of morphia had been given, and was followed by chloral and bromide via rectum, and chloroform by inhalation. The spasm lasted a half hour, and he remained in the opisthotonos position for fully two hours. There was a slight recurrence on the following morning. When consciousness was regained he gave a history of having had frequent attacks of epileptiform seizures since childhood. When the dressings were removed on the fourth day the wound was found sealed.

A CONTRIBUTION TO OUR KNOWLEDGE OF CORTICAL BLINDNESS.—TWO CASES OF BILATERAL HOMONYMOUS HEMIANOPSIA.*

By DR. C. BARCK,
ST. LOUIS.

SINCE the first communication by Hitzig, in 1875, on a centre of vision in the posterior part of the cerebrum, this question has been zealously studied by comparative anatomists, physiologists, pathologists and oculists. To their combined efforts we owe it that the question in the main can now be considered as solved, whilst on some points there is still considerable controversy. The primary optic centers (nuclear centers) are:

1. The external geniculate bodies.
2. The pulvinar.
3. The anterior quadrigeminal bodies.

In the first one of these about 80 per cent. of the fibers of the optic nerve end, and therefore it must be regarded as the most important nucleus. The corpora quadrigemina are entered by the fibres for the pupillary reflex only; at least this is the generally adopted opinion, based upon experiments as well as pathological findings.

From the primary centers the fibres pass caudad under the name of optic radiation and reach the convolutions of the occipital lobe. The exact extent of the occipital cortex, which must be destroyed in order to cause complete hemianopsia, is not yet fully known. According to Munk, in the ape the entire occipital lobe up to the fissura occipito-parietalis is the center of vision. In man the same conclusion seems to be justified, as in different instances different parts of the occipital lobe have been found affected; but invariably the convolutions around the calcarine fissure were implicated, and according to Henschen's analysis this is the most important part of the visual area. The question which is not yet solved, and no doubt a very interesting one, is the central area corresponding to the macula lutea. The opinion of Munk, that in the ape the macula lutea is represented in the

*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

convolutions of the opposite occipital lobe, which are turned towards the sulcus longitudinalis, can not be accepted for the human brain. The clinical experiences speak irrevocably against it. They are:

1. That in unilateral hemianopsia the central vision is always preserved, no matter if the hemianopsia is right or left-sided.

2. That also in bi-lateral hemianopsia, due to succeeding lesions in both cortical centers, a small area around the point of fixation is preserved, with sometimes remarkably good central vision.

Of such cases of double-sided hemianopsia there have been reported in literature up to 1896 27 instances, which were collected by Kastermann (*Monatschrift für Psychiatrie und*

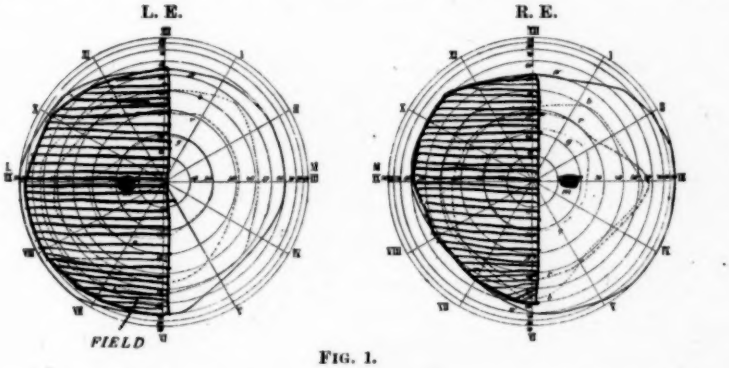


FIG. 1.

Neurologie, November, 1897.) Since about half a dozen more were published. I have seen the following two in my practice:

CASE I.—H. R., 59 years old; was first seen in September, 1889. A few days prior to his consultation he awoke with a severe headache and had more or less pain in the head ever since. Furthermore, he noticed some disturbance of vision. No alteration of sensorium, no paralysis or paresis.

The examination of the eyes revealed nothing abnormal objectively; fundi normal. Subjectively there was a typical complete, right homonymous hemianopsia. The boundary between the blind and seeing portions of the fields was running perpendicular about $1^1/_2°$ to the right of the center. Outlines of the remaining half of the field normal. (See Fig. 1.)

I diagnosed an affection of the left occipital lobe, probably due to thrombosis of the arteria cerebri posterior. I saw the case a few times shortly hereafter, and then once nearly a year afterwards. The field of vision remained the same. The central vision, which was at the first examination $^{6}/_{18}$ in the right and $^{6}/_{24}$ in the left eye, had improved to nearly $^{6}/_{12}$ in each. He could read large type. The patient was brought to me again in March, 1894. He was nearly blind and had to be guided. Fundi normal. The fields were reduced to a small area around the point of fixation, about $2^{1}/_{2}^{\circ}$ wide and $^{3}/_{4}^{\circ}$ high. (See Fig. 2.) I found the central vision better than I expected—$^{6}/_{50}$ and $^{6}/_{60}$ respectively. But he was not able to orientate himself, either on the street or even in his own room. He had lost the memory for places. This want of

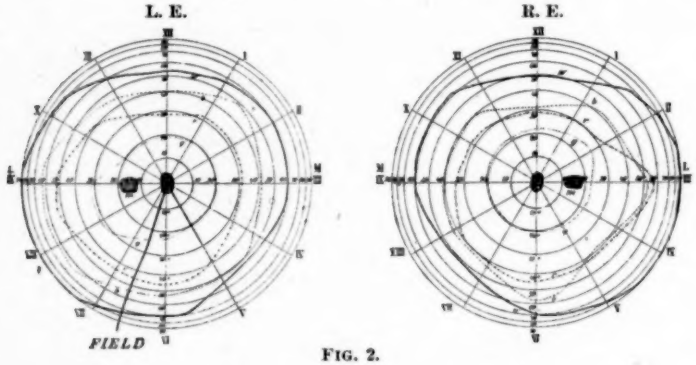


FIG. 2.

orientation and memory for places in spite of the persisting central vision is one of the symptoms of Munk's so-called "Seelen-blindheit," mental blindness, and is in all probability due to an interruption of the visual associate fibres between the cortex of the occipital lobe and the other centers of the cerebrum, center of speech, etc. The diagnosis could only be that of destruction of the right occipital lobe, including the mentioned tracts.

Also this time there were no complications, the mental functions not considerably affected, so that the clinical picture was quite a clear and precise one. I saw the gentlemen at intervals about three or four times afterwards. The field of vision did not change materially, whilst the central vision improved considerably. At the last visit, in October, 1896, he

was able to read large type. The color perception was impaired, but not altogether lost. His main complaint was still his difficulty in orientation. He died a few months afterwards, and unhappily I was not able to secure a post-mortem.

Case II.—Wm. B., age 57; was first seen on the 21st of June, 1898. The history which could be obtained was not very clear. He had a stroke of apoplexy about three-quarters of a year previously, which caused a nearly complete paralysis of the left arm and leg. At the same time his vision became affected in a manner which he could not describe any more closely. The eyes were not examined at that time; for the palsy he was under treatment of his family physician. This improved slowly and at the same ratio as his sight, till a week ago. Since then he complained of headaches and noticed a

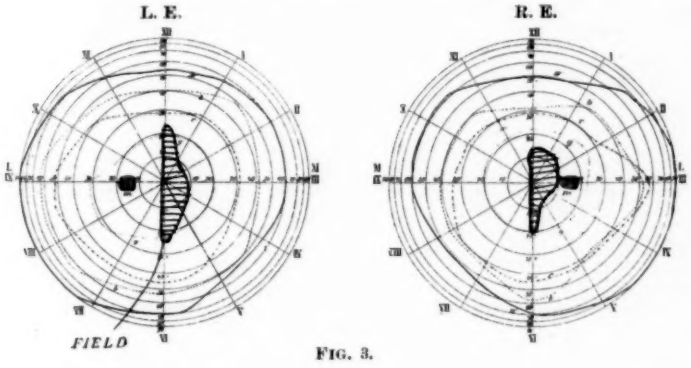


Fig. 3.

considerable decline of vision, which prompted a consultation.

I found the external appearance of the eyes and the fundi normal. V. R.=$^1/_{60}$, V. S.= fingers at 1 meter. The visual fields showed a complete left and a partial right hemianopsia. The boundary line to the left was running perpendicular about 1° to the left of the point of fixation. In the right half there was an area left which extended 10° to 15° horizontally at the widest part and 35° to 40° vertically. Fig. 3 represents more closely. The color perception was good. Besides the paresis on the left arm and leg there was a weakness of memory and generally a slow cerebration. Orientation was not materially affected.

I arrived at the diagnosis of bilateral homonymous hemianopsia; that at the time of the apoplexy the right occipital lobe was implicated, causing a typical and complete left

hemianopsia, and that shortly before his visit the left occipital lobe became affected, causing an incomplete right hemianopsia.

The patient improved slowly in every regard. The next time I saw him was on the 17th of November, 1898. The central vision had increased to $^{6}/_{30}$ in the right and $^{6}/_{24}$ in the left eye. He was able to read Snellen VII. with the proper correction (+ 4.0). The left half of the field unaltered, the seeing area of the right increased (See Fig. 4.)

He visited afterwards some sanitaria, and I did not see him till February, 1900. His general condition had continued to improve, and so had the sight. It was $^{6}/_{10}$ in each eye; could read Sn. III. and even II. with difficulty. The field of the right half was again enlarged, that of the left remaining blind. At his last visit, end of 1900, the findings were the same. The conclusion we must arrive at is that the lesion of the right occipital lobe is irreparable, whilst that of the left was of a milder character, amenable to improvement.

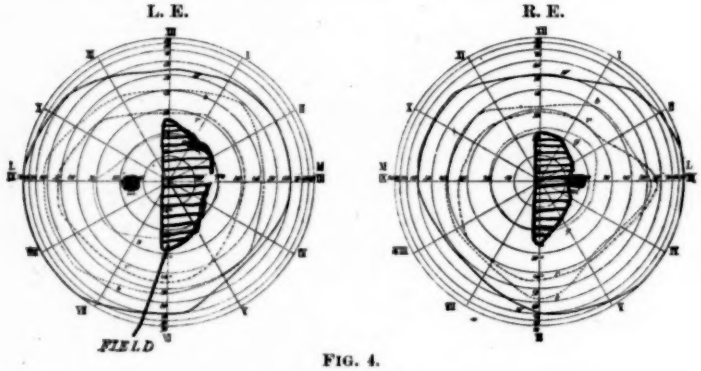


FIG. 4.

Of the mentioned number of reported cases of bilateral hemianopsia, we possess five post-mortem examinations. Of these in two (of Schmidt-Rimpler and Peters) symptoms and the lesions found were so complicated and manifold that they are hardly available for the solution of the question which interests us. Only the remaining three presented an uncomplicated and clear picture, and are therefore of high value.

As some of these original communications are not easily accessible I take the liberty to quote them briefly:

1. Case of Forster and Sachs (clinical picture in *Arch.*

für Ophthalmology, Vol. 36, 1890. Post-mortem in *Arbeiten aus der Psychiatrischen Klinik in Breslau*, 1895.) Man of 44. In November, 1884, sudden and complete right hemianopsia. Vision ⅓; rose nearly to the norm within the next month, so that the patient could resume his occupation. In August, 1899, left hemianopsia developed within a few days. Only a small central part of the field remained, extending 1° to the right, 3° to the left, ½° upward and 2½° downward from the point of fixation. Central vision at first ⅓, rose afterwards to ½. Color perception entirely lost. Orientation also entirely lost, whilst patient was able to read and write. Exitus in 1893.

The post-mortem showed in both hemispheres, quite symmetrically, a large defect on the mesial surface of each occip-

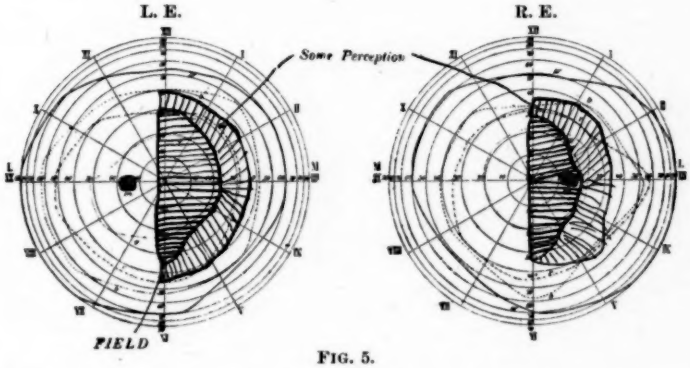


FIG. 5.

ital lobe. It implicated also a large portion of the convex surface. The microscopical examination revealed that of every occipital lobe all the medullary layers mesially and below the ventricle were destroyed. Only a small anterior particle of the cuneus and the hindermost portion of the fissura calcarina were apparently left intact.

2. Case of Kaestermann (loco citato), 1896. First right hemianopsia. Three years afterwards left hemianopsia, with the exception of a peripheral zone in left half of field. Color perception lost; want of orientation; mental blindness.

Post-mortem showed both occipital lobes destroyed by softening. Only in the area of the fissura calcarina there were two symmetrically located places, at the floor of each fissura close to the edge of the occipital lobes, which had remained intact.

3. Case of Laqueur (*Bericht der Opthal. Gesel.*, Heidelberg, 1898). Patient, 62 years old; was suffering since 14 years from chronic nephritis and arteriosclerosis. On June 15, 1897, accompanied by severe headache, a complete hemianopsia developed. On 29th of July he became suddenly entirely blind. Examination by Prof. L. two months after the last attack. V.R. = $^2/_5$, V.L. = $^5/_9$ The field of vision measures $1^1/_2°$ in the horizontal and $2\text{-}2^1/_2°$ in the vertical direction. Orientation and sense of locality gone. Within the next year no change of field, but improvement of central vision, so that he could finally read Yaeger No. 1. Exitus on on the 6th July, 1898.

Post-mortem by Recklinghausen. The basal blood vessels of the brain show atheromatous degeneration. On the left hemisphere there is a place in the second branch of the arteria cerebri posterior $^4/_5$ mm. long where the blood vessel does not collapse, and does not contain blood. Introduction of probes from both sides proves that here the lumen is firmly closed to the extent of 10 mm. The continuations of the obliterated artery are open and contain blood. On the basis of the right hemisphere, in spite of careful searching, no obliteration of the artery could be detected.

The most prominent microscopical changes of the cerebrum were found on the mesial and lower surface of the two hemispheres. In the left hemisphere the entire cuneus, the gyrus lingualis and gyrus fusiformis were totally sunken and softened. Forward the softening reaches to the branching of the art. prof. cerebri. The two inner convolutions of the lower surface are entirely destroyed.

In the right hemisphere the cuneus is softened, but not fully destroyed. A considerable portion of its upper convolution against the convexity is left intact. Downward the softening extends into the posterior portion of the gyrus lingualis up to $^1/_2$ cm. from the edge of the occipital lobe. Forward it extends along the fissura calcarina also to the branching of the art. prof. cerebri.

All the other parts of the brain were found normal.

Prior to our knowledge of bi-lateral hemianopsia (commencing in 1890) the explanation for the preservation of central vision in unilateral hemianopsia was that the macula lutea region was provided for by both occipital lobes, and

that after destruction of one the other assumed the function. The main supporters of this theory were Gowers, Knies and Wilbrand. It is no doubt insufficient to explain the remaining central vision in bilateral hemianopsia.

Forster drew from the findings in his case the conclusion that the macula lutea was represented in the convolutions around the posterior portion of the fissura calcarina. Kaestermann's case would support this opinion. Henschen, on the other side, arrives at the opposite conclusion, that the convolutions around the anterior portion of the fissura calcarina represent the macula. Laqueur's case would speak for this opinion.

Evidently no conclusion can be drawn from a few cases, and the solution of this problem must be left to the future. Monak (on brain diseases in Nothnagel), after a careful revision of all the known cases, ventures to express the following idea:

1. That the macula is especially richly represented in the external geniculate bodies.

2. That it is represented at no special portion, but by the entire cortex of the occipital lobe.

DISCUSSION.

Dr. W. O. Stillson, Indianapolis.—I will not take much time in the discussion of this paper, because it would take a whole afternoon to do it justice; but I commend Dr. Barck and thank him for the paper, which was very interesting to me and to every one interested in ophthalmology. It was worth a trip here to hear this paper. I have had a good deal of trouble in locating these lesions, and the doctor's paper has made it plain. This is of interest to the neurologist as well as the ophthalmologist. I thank him greatly.

Dr. W. L. Dayton, Lincoln, Neb.—I would also thank Dr. Barck for this paper, and I hope we may see it in print early that we may digest it carefully. I am very much interested, inasmuch as I have a case of a distinguished gentleman, who has been colonel of the regiment which Bryan raised; he has been exposed to the climate of Colombo. He is a man of wonderful physique. When he was first attacked I think he was in bed suffering from an attack of catarrhal fever; there was homonymous hemianopsia.

HYALINE DEGENERATION OF THE CORNEA, WITH REPORT OF THREE CASES.*

By OSCAR DODD, M.D.,

CHICAGO,

Surgeon (Eye Department) Illinois Charitable Eye and Ear Infirmary; Oculist and Aurist at the Augustana and St. Joseph's Hospitals.

THE hyaline is said to be the most common form of degeneration of the cornea, being one of the products of a transformation of the albuminoids due to defective nutrition. It may affect the epithelium alone or the substantia propria of the cornea as well. The degeneration is accompanied by an infiltration of fine dots, granules or larger globules of a highly refracting material, differing from amyloid or colloid in their reaction to certain stains.

As examples of the clinical conditions in which it occurs, arcus senilis is the most common form affecting the corneal tissue proper. The epithelium may be affected alone, as in bullous and filamentous keratitis, where the changes take place rapidly and the degenerated tissue is exfoliated. A much more chronic condition is that known as "Band-Shaped Keratitis," "Transverse Films of the Cornea," and by various other names, where the degeneration takes place both in the epithelium and the deeper tissues, and is followed by a deposit of lime salts.

The three cases which I shall report belong to this chronic form but differ clinically very much from most of the cases reported. The first case was one with a marked hyperplasia of the epithelium, probably associated with a hyaline deposit.

Mr. P., aged 65 years, came to my office in October, 1898. He was a master mechanic of one of the large railroads, and his work required considerable application as well as exposure. He had noticed a small growth on his right eye for ten or fifteen years, probably a pinguecula. In December, 1895, his eye began to give trouble, and in April, 1896, he had a pterygium removed by the local physician. In June, 1896, he consulted the late Dr. Tilley, who operated and later cauterized it with medicines several different times at intervals of some weeks apart. When I first saw him the eye had gone

*Read at the meeting of the Western Ophthalmologic and Oto-Laryngologic Association, held in Cincinnati, Ohio, April 11-12, 1901.

some time without treatment, and recently it had become so irritable he could not use the other eye for his work.

The palpebral conjunctiva was practically normal. The eyeball was very much congested, a great many vessels running up to the cornea. On the cornea were two thick whitish masses, one on the nasal, the other on the temporal side, covering about two-fifths of the whole surface. Between the masses and above and below them the cornea was opaque and vascular, but not much elevated. The surface of the masses was rough and warty in appearance and not as vascular as the remainder of the cornea. His vision in that eye was reduced to shadows. The other eye was normal.

I operated at the hospital under cocaine anæsthesia, scraping off all the opaque material and then cauterizing the roughened places with the galvano-cautery. I found the proliferation was entirely epithelial, removing easily from Bowman's membrane and not affecting the substantia propria. The lumps were rather hard and came off in large pieces. Unfortunately the nurse destroyed the specimens, so I could not examine them microscopically.

The surface healed readily, leaving the epithelium somewhat irregular, with a slight, diffuse opacity. The eye became quiet and the vascularity disappeared. Two years later, when I examined him, I found the eye normal in appearance, except a slight opacity and irregularity of the surface of the cornea. The vision in that eye was $^{6}/_{22}$, with a + 2.D. sph.

A point worthy of notice in this case is the etiology. It occurred after the removal of a pterygium, and its growth was probably furthered by the irritating applications made to it. At a recent meeting of the Chicago Ophthalmological Society Dr. Wilder presented a case having a similar history and almost like it in appearance. There had been a pterygium removed a few months before, following which the growth made its appearance. He was able to improve the conditions by removing it, so the vision increased from the perception of shadows to $^{20}/_{100}$. Dr. Payne of San Francisco reports a case similar to this in a man aged 33, who had worked in a smelter where he had been exposed to the dust and irritating fumes. His eye trouble had existed twelve years. He had a diffuse epithelial deposit covering almost the entire cornea, but

thickest near the center, where it appeared very uneven, in some places lumpy. Around the margin it appeared flat and almost transparent.

The second case, Mrs. J. M., aged 39, came to my office in October, 1900, with the following history: Her eye trouble began when a child of two years, with a severe inflammation lasting several months. Since that time at intervals she had had attacks of inflammation of the eyes, lasting one or two days and then subsiding. She was able to do her school work and later the duties of the house, as sewing, etc., although with difficulty at times, until about six months before coming to me, when she became unable to read. Her general health had always been good, and she appeared strong and healthy with the exception of her eyes.

She had a great deal of photophobia, and the light caused her severe pain. The lids were heavy and thickened, and she was unable to open them well. The ptosis was probably caused by her having kept them partially closed so long. The conjunctiva was about normal. Some ciliary congestion was present, and on each cornea were several translucent, whitish spots considerably raised above the surface. They were about the size of a pin-head, or a little larger, the left cornea having the greater number. The spots were superficial and probably located on the site of former ulcerations. Most of the remainder of the cornea was transparent, but at the upper part of each cornea was a leucoma — more dense on the left eye. She could count fingers at ten feet with either eye, and her vision could not be improved either by glasses or dilation of the pupils.

I operated the next day, under cocaine anesthesia, on her right eye. Most of the spots separated easily from the cornea, not extending deeper than Bowman's membrane. One spot near the scleral margin extended beyond the limits of Bowman's membrane into the deeper layers, leaving a rough surface after removal. Healing took place readily, the epithelium forming over the denuded spots, with no marked infiltration into the deeper structures, except at the spot near the margin. What infiltration there was gradually disappeared until only a slight opacity marked the sites of the former spots.

Two weeks later I scraped the opacities from the left eye, but found it more difficult than the right. Several of them were near the corneal margin, so they did not separate well from the underlying tissue. Healing took place readily, as in the other eye, but more opacity remained. Two weeks later, when she returned home, her vision was $^{6}/_{15}$ in her right eye and $^{6}/_{22}$ in the left.

She returned the latter part of January, this year, with her eyes greatly improved. The photophobia and lacrymation were largely gone, but the eyes would become congested on handling. There was some opacity where the spots formerly were, and some irregularity of the corneal epithelium. The eyelids were heavy, and the ptosis could not be overcome even by extreme effort. Her vision was $^{6}/_{12}$ in the right eye, with a + 3.D. sph., and in the left $^{6}/_{15}$, with a + 2.D. sph.

In this case we probably have a hyaline infiltration underneath the hypertrophied epithelium at the sites of the old ulcerations. That the condition is rare would be shown by the fact that when I presented the case before the Chicago Ophthalmological Society no one had seen a similar condition.

Nuel has described the condition and gives a cut of the microscopical appearance in his article on Diseases of the Cornea in the Norris and Oliver System of Diseases of the Eye. In that specimen the hyaline infiltration is under the epithelium and is infiltrated with calcareous material.

In the following case the degeneration affected all the layers of the cornea. The calcareous precipitate in the superficial part was probably a later development.

Miss O. S., aged 19, came to my office in July, 1900, to consult me regarding an operation to improve her sight. She gave the following history: Her eye trouble dated from a severe inflammation when she was 7 years of age. Her eyes were never strong after that, but she was able to do her school work until six years later, when she had an inflammation lasting several months. This left the eyes in bad condition and she would have frequent attacks of inflammation lasting one or two days. Her general health had been good, but her color was pale and waxy, and she had very little endurance.

There was a great deal of irritation of the eyes and photo-

phobia. The palpebral conjunctiva was about normal, but there was some circum-corneal congestion and lacrymation. The cornea was full of fine, whitish dots, some of them so small they could only be seen with a strong lens. Apparently the whole thickness of the cornea was involved, but they were most dense in a circle about the pupil in each eye. At this point they were larger and more superficial and gave a slightly uneven appearance to the surface of the epithelium, which was smooth over the remainder of the cornea. The larger spots looked like deposits of some foreign substance, as lead or chalk. Her vision was $^{6}/_{30}$ in the right eye and $^{6}/_{45}$ in the left. Under atropia it improved to $^{6}/_{30}$ in each eye. The fundi were normal as far as could be seen.

Hearing that she had consulted Dr. Westcott a few years before, I saw her in consultation with him, and he gave me the following notes from his record: He saw her in May, 1897, when she complained of the eyes watering and being sticky in the morning, and of headache over the eyes. The conjunctiva was roughened and the cornea was dotted with very fine opacities, apparently superficial. The vision was $^{20}/_{50}$ in each eye, and under atropia with a correcting glass it was slightly improved. He said the spots in the cornea were much larger and more numerous than when he first saw her.

I scraped the central opacities from the left cornea with a curette as thoroughly as possible. They came off in chunks like grains of sand, leaving holes quite deep in the cornea. I was able to remove most of the larger spots, but some were so firmly imbedded in Bowman's membrane or below it that I did not think it best to dig so deep for them. The epithelium re-formed surprisingly well, leaving the surface quite smooth but with slight opacity where the spots were removed. Eight days after the operation her vision was $^{6}/_{15}$ and with a $+.75$ D. cyl. $= {}^{6}/_{12}$.

About a month later I operated on the other eye and obtained an equally good result, so that a few days after her vision was $^{6}/_{12}$ with each eye. The larger white spots which formed the ring about the pupil were mostly removed, but some of the deeper ones remained.

Grönouw reported two cases that were similar to this in their clinical appearance, both eyes being affected. He had

watched one case for ten, the other for eleven years, with no marked change except the gradual increase in the size and number of the spots. In one case—a man, aged 50—the margin of the cornea was quite clear, while the center was filled with a great number of gray opacities. They were irregularly round; part of them were separate and part in groups. The larger ones were the size of a poppy seed, with smaller ones between, and some fine stripes and lines between the opacities. They were in all layers down to Descemet's membrane. There was no inflammation and very little circumcorneal congestion. His vision decreased from $^{2}/_{5}$ in 1889 to $^{3}/_{60}$ in 1897. In the second case—a girl, aged 17—the opacities were in the central part of the cornea and were more dense than in the other case. The epithelium was raised and uneven in the center but not in the other parts of the cornea. The small spots extended through to the deeper layers. He removed some of the cornea for microscopical examination, as I shall mention when discussing the pathology.

As to the cause of this trouble we know very little. That in the first case the pterygium and the subsequent irritating treatments were a factor there can be no doubt. In the second case we have the trouble beginning as a probable sequel of a corneal ulceration, with the irritation of subsequent recurring inflammations. I have seen two cases in consultation with other oculists, where a previous ulceration was given as the cause of a hyperplasia at one point, similar in appearance to the spots in this case—only larger. It is not so easy to understand the cause of the third case. Any inflammation severe enough to interfere with the nutrition of the cornea and produce the changes in the corneal cells should have left some other mark. Of the two cases, similar to this, reported by Grönouw, one had had a mild inflammation of the eyes prior to the development of the trouble, but the other had never had previous trouble.

Nettleship considers cardiac and kidney trouble, as well as the gouty diathesis, as probable causes of the form of degeneration known as "Band-Shaped Keratitis," while Galezowski found phosphaturia present in three cases of calcareous infiltration of the cornea, and considered it the cause.

In my statement of the pathology I shall have to depend

more upon the reports of the cases quoted than upon my now examinations. I saved the specimens from the second case, but they were very small, and so hard that it was impossible to make good sections. They appeared to be a hyperplasia of the epithelium which had undergone some change, with probable calcareous infiltration, but the sections were not thin enough to make the differential stain. The methods of staining for the differentiation of hyaline have been so varied that it is hard to reconcile their results. According to the latest authorities on pathological technique, the old methods of staining were unreliable and frequently gave contrary results. Whether the new differential stains will cause us to modify the statements made regarding hyaline degeneration remains to be proved. For instance, Fuchs found that a hyaline degeneration was one of the principal changes in the pinguecula. He arrived at quite different results, however, than v. Recklinghausen in his work on that subject.

The pathological conditions in my cases were very probably similar to those occurring in band-shaped keratitis, and described by Treacher Collins as follows: A formation of laminated fibrous tissue is present at the anterior part of the cornea between the epithelium and the normal situation of Bowman's membrane, which in most cases contains a granular material, either collected in masses or more loosely distributed in the epithelium. No blood vessels are found in this new fibrous tissue. Granular hyaline or entirely granular bands are found at the posterior part of the new tissue, in some cases forming a sharp line between it and the substantia propria. Where the hyaline granular bands exist Bowman's membrane is never found in contact with the epithelium. These bands may be found directly continuous with Bowman's membrane, so there can be no doubt that they are portions of it which have become granular and divided up. Degenerative changes are found in the epithelium in the region of the film. Calcareous material was found in all the cases examined.

Grönouw found in the case he examined, which was like the last one I reported in clinical appearance, that there were round masses and stripes of a transparent homogeneous substance lying under the epithelium and in the substantia propria. The spots were colored intensely red by eosin, stained

a light brown with iodine, and did not change on the addition of acids corresponding to the tests for v. Recklinghausen's hyaline. He thought that the smallest opacities seen in the cornea were caused by the changed corneal cells, as they were so swollen that the nuclei would not stain. It is probable that these were the beginning of changes from which the hyaline substance is developed. Fuchs, in his article on Superficial Punctate Keratitis, also takes the view that the fine spots seen in the cornea are the swollen corneal cells.

Following the hyaline degeneration we frequently have a deposit of lime salts. This is particularly noticeable in band-shaped keratitis, occurring as it frequently does in old, degenerated eyes, following injury or glaucoma.

As to treatment, nothing is of benefit except removal of the degenerated tissue when it is superficial. The thorough removal of the abnormal tissue has been followed by the formation of normal epithelium in all the cases I have seen, with the attending of the irritation and congestion. In those cases affecting the deeper layers of the cornea, with calcareous infiltration near the surface, some benefit may be obtained by scraping out the most superficial deposits. That they will return later is very probable.

Since writing this paper I have had a case similar to those reported, but developing more rapidly. About six months ago the woman had an ulceration of the cornea, which started at the margin and extended quite a distance. Following the ulceration the eye remained irritable and the opacity grew more dense. On the temporal side of the cornea, extending nearly to the pupil, was an opacity, raised slightly above the surface, part of which was translucent and quite vascular, and part of it being infiltrated with a white material, probably calcareous. There was some circum-corneal congestion and the eye was quite irritable. It will probably be necessary to scrape the surface thoroughly before the eye will become quiet and not give trouble.

The preceding cases show that we may have, in otherwise healthy eyes, a hypertrophy of the corneal epithelium, associated with a degeneration, simulating in its appearance a new growth, and that this hypertrophy may be removed, leaving a serviceable eye.

REFERENCES.

Fuchs—Keratitis Punctata Superficialis: Wiener klin. Wochenschrift, N. 44.

Grönouw—Knötchenförmige Hornhauttrübungen: Graefe's Archiv., Bd. 46.

Grönouw—Knötchenförmige Hornhauttrübungen: Archiv. f. Augenheilkunde, Bd. XXI, s281.

Payne—Keratitis Epithelialis Hypertrophica: Annals of Ophthal., 1900.

Galezowski—Assoc. franc. pour l'avance de sci., 1878.

Nettleship—Band-Shaped Keratitis: Trans. Ophth. Soc. of the U. K., 1886.

Collins - Erasmus Wilson Lectures: The Lancet, Feb. 17 and 24, 1900.

Fuchs—Zur Anatomie des Pinguecula: Graefe's Archiv., Bd. XXXVII.

Fuchs—Graefe's Archiv., Bd. XXXVIII.

DISCUSSION.

DR. AYRES, Cincinnati.—I have been very much interested in this subject. These cases constitute a group distinct from the ordinary corneal diseases. I have had some cases where I scraped the cornea, but whether there was hyaline degeneration or not I am unable to say. The first case I will mention is that of a lady who came to me last October. In August she had an inflammation from which she apparently recovered and then relapsed, and when I saw her there was in the center of this old scar a depression and one of those necrotic processes which are slow to heal. The eye was sensitive and painful. These are the cases where curetting and scraping are followed by very excellent results. I curetted the cornea and removed the necrotic tissue. It did not appear, however, to be calcareous, but the removal of this tissue was promptly followed by a restoration of the epithelium and the surface healed over. I had last year an interesting case of injury to the cornea. The gentleman was thrown from his carriage and two or three days after suffered from pain in the left eye. Examining it, first I could see no wound, but the eye was very painful. I ordered cocaine locally. The next day the epithelium over the center of the cornea was elevated. On the following day I tore off this epithelium around to the healthy epithelium and kept the eye bandaged, and in a short time the epithelium was restored. That probably was traumatic, the trouble arising from the fall from the carriage. The next is the case of a young man in the city. A few

years ago he came in with a violent inflammation. There were greyish spots in the epithelium of the cornea. In a short time these spots enlarged and coalesced, the epithelium came loose, first in one eye and then the other, and was completely shed in both eyes. The restoration of the same was very rapid. I think it was only a few days until the eyes were in good condition. Allied to this is the bullous keratitis found in old, glaucomatous eyes which have been blind for a long time. I had a case of a man 75 years of age who had been blind five years, and for several months he had had a violent pain in the left eye. I first removed the blebs and then applied a 40 per cent. solution of silver nitrate over the cornea, and up to five weeks ago there was no return of the pain nor had the blebs reformed.

Dr. Adolf Alt, St. Louis.—I have had occasion to examine quite a number of such cases, and a drawing of one can be found in my book on the histology of the eye. I have also a specimen, sent me by Professor E. Fuchs of Vienna, in which there is a hyaline degeneration which affects the anterior layers of the cornea. The epithelium is not normal, but it does not show the hyaline degeneration. Lime deposits, which stain very much like hyaline substance, can easily be recognized by the application of an acid. The doctor is to be congratulated in view of the results of his treatment.

Dr. Phillips, Chicago.—One of the cases Dr. Dodd reports I had the pleasure of seeing, and I can state that the appearance of the diseased area was that seen in Arcus Senilis, except its occurrence in spots and as distinct elevations on the surface. I also saw a second similar case under the care of Dr. Wilder, and presented to the same society. A microscope examination was made of the tissue removed in this case, and it was found, I believe, to be hyaline degeneration. I have not seen Dr. Wilder's statement in regard to the final examination. The cases were similar, with the exception that in Dr. Wilder's case a larger single area of the cornea was involved. From my experience I can say that Dr. Dodd's case had none of the appearances of keratitis filamentosa.

Dr. Dodd, Chicago.—I am very much obliged to the gentlemen for discussing the paper, because it is rather out of the

ordinary, and I was very much at sea when I first saw these cases as to where to class them. As regards its being similar to fascicular keratitis, I do not think it is. I think a number of these conditions aside from what I have mentioned should be classed in the same group—the clinical appearance differing a little, but the general conditions being alike.

BOOKS AND PAMPHLETS.

"Merck's 1901 Manual."

"Report of the Nederlandsch Gasthuis for 1900."

"Report of St. Louis Mullanphy Hospital for 1900."

"The Insanity of Puberty," by F. P. Norbury, M.D.

"The Functional Test of Hearing," by D. L. Ballenger, M.D.

"Evolution of the American Medical College," by A. R. Baker, M.D.

"Magnetic Foreign Bodies in the Eye," by E. V. Appleby, M.D.

"Surgical Treatment of Palatal Defects," by T. W. Brophy, M.D.

"The Advantages of Railway Surgery," by H. C. Fairbrother, M.D.

"Eleventh Report of the New Orleans Eye, Ear, Nose and Throat Hospital."

"The Amount of Myopia Corrected by Removal of the Crystalline Lens," by E. Jackson, M.D.

"Accidents Attending Adenoid Operations," by C. R. Holmes, M.D., and H. S. Garlick, M.D.

"Principles of Asepsis Applied to Operative and Other Wounds of the Eye," by E. Jackson, M.D.

"Studies in the Physiology and Psychology of Visual Sensations and Perceptions," by F. W. Ellis.

"Katalog der Buecher-Sammlung," von J. Hirschberg, M.D. (Catalogue of the Library of Prof. J. Hirschberg).

MEDICAL SOCIETIES.

SIXTY-NINTH MEETING OF THE BRITISH MEDICAL ASSOCIATION, HELD IN CHELTENHAM.*

Section of Ophthalmology.

The President, Mr. W. H. H. Jessop, gave a presidential address on Points in the Pathology and Prognosis of Glioma. Mr. Priestley Smith opened the discussion on Myopia, and drew conclusions from 100 cases of all degrees of the affection. He discussed the condition under the heads of the age of the patient, the degree of myopia present, the state of the choroid and retina, the constitutional condition of the patient, evidence of heredity, occupation of the patient. Dr. A. S. Percival showed a diagram of the orbit, and thought the oblique muscles were very powerful in the production of myopia. Mr. Henry Power laid stress on the hygienic surroundings of the patient and the pernicious habit of allowing children to work before breakfast and on insufficient food. Dr. Darier (Paris) referred to massage as a treatment for myopia. Mr. A. H. Thompson thought the chart shown by Mr. Priestley Smith most useful, and considered it safe for myopes of a low degree to use their accommodation. Mr. Eales thought the power of accommodation of the patient was a great index as to the condition present, and also that with exophoria accompanying it prisms did much good. Dr. Barr did not consider reading in a carriage very likely to do harm, but he especially warned myopes against reading in bad light. Dr. Maddox held that fatigue of the eyes should be avoided whenever there was a tendency to myopia. After some remarks by Dr. Bronner, Dr. Batten discussed various general conditions as bearing on myopia, and also the appearance of the fundus in various stages of the disease. Dr. Tatham Thompson fully corrected his low cases of myopia. Surgeon-Major Herbert read a paper on Superficial Punctate

*British Medical Journal.

Keratitis, in which the dots on the cornea were stained with fluorescine. In these dots he found an encapsuled bacillus, which showed many signs of causing the disease, though most cultures had failed. Mr. Devereux Marshall thought the name "keratitis punctata" very confusing, and did not consider the proofs brought forward by Major Herbert very conclusive. Mr. Blair thought it resembled Fuchs' keratitis. Dr. Tatham Thompson described a case of symmetrical bullous keratitis in a man, aged 22. The bullæ arranged themselves all around the cornea, and were cured after four months of treatment, of which formol (1 to 5,000) appeared to do the most good. Dr. C. Blair reported a case of unusual form of keratitis associated with a skin eruption in a patient aged 18, who showed swellings around the cornea which were somewhat like what was seen in spring catarrh. At times exacerbations occurred, and these were associated with a papular eruption of the skin of the face. He considered it a part of a general condition. Mr. Devereux Marshall thought it very like a tuberculous cyclitis. Dr. Blair thought this possible, but stated that it had not altered much for four years. Dr. Percival read a paper on Periscopic Lenses, the errors of which had been worked out mathematically. The President, Dr. Maddox, and Dr. Tatham Thompson joined in the discussion.

Second Day.

The work of this Section was begun by Mr. Blair, who showed a new portable refractometer. Mr. Roll then read a paper on the Hess Operation for Ptosis, which he had somewhat modified. He showed photographs of patients before and after the operation had been performed. Mr. J. R. Coulter showed some interesting fields and strongly advocated the testing of fields with black spots. Mr. Hartridge wished that all observers would state the size of the square used when taking fields. Mr. Henry Power read a paper on the Performance of Depression for the Cure of Cataract. He stated that he had many times seen it done in his early life, and had also performed the operation himself. He advocated it in some cases of old, feeble patients, in those who were deaf, and also in lunatics, idiots, etc. Mr. Jessop mentioned one successful case he had seen done abroad in a second eye after

the first had been lost from hæmorrhage, but stated that he had never done the operation, and asked if Mr. Power operated through the sclera or cornea. Mr. Richardson Cross had done it in one case of tremulous iris. Mr. Roll once did the operation accidentally when extracting the lens. He subsequently extracted it with good result. Mr. Tatham Thompson had done it once eighteen months ago with excellent results. Mr. Power, in reply, stated that he operated through the sclera. Mr. Vernon Cargill next read some notes on his ophthalmic experience in the Imperial Yeomanry Hospital in South Africa. He showed museum specimens and fragments of bullets which had destroyed or injured eyes. He described the most frequent injuries met with as the result of gunshot wounds, and also more rarely of shell wounds. A discussion on the Relation of Gonorrhœa to Diseases of the Eye, exclusively of Purulent Ophthalmia, was then opened by Mr. Lawford. He described some cases in which iritis and other lesions occurred after the disease. The frequency of these was more marked in males than females, but the statistics were very limited. The most common form was iridocyclitis, together with scleritis and episcleritis; the least common forms were retinitis and neuroretinitis, and even bilateral infection of the lacrymal gland. Mr. Hamilton described a case of gonorrhœal iritis in which there was no arthritic infection. Dr. Yeld had recently analyzed many cases of iritis, and had found that gonorrhœa was responsible for many. Dr. Darier had seen many cases associated with endometritis, which were rapidly cured when the uterine affection was treated. Mr. Henry Power thought that cases of gonorrhœal iritis must be excessively rare. Mr. Richardson Cross was always on the lookout for cases, and frequently found such. Colonel Drake-Brockman had in India seen cases of iritis associated with gonorrhœal ophthalmia. Mr. Sydney Stephenson had seen cases of arthritis in children associated with gonorrhœal ophthalmia. Mr. Devereux Marshall described the characteristic transparent exudation in the anterior chamber. Mr. Vernon Cargill drew attention to the numerous cases of rheumatic iritis in which there was a history of gonorrhœa. Mr. Hamilton read a paper on Hypopyon Ulcers of the Cornea, in which he advocated the

cutting of the vessels and local bleeding. The actual cautery he thought indispensable. Mr. Richard Williams frequently found the cautery inefficient, but made a vertical linear incision and let out the lymph. Mr. Tatham Thompson looked upon formalin as his sheet anchor, and subsequently used iodoform ointment. Mr. H. E. Jones had almost given up the cautery. Dr. Darier strongly advocated the careful use of fluorescine and the actual cautery. Dr. Barr agreed as to the great value of the cautery and fluorescine, but disapproved of dressings over the eye, and preferred the instillation of castor oil and iodoform. Dr. Ward Cousins showed an irrigator he had introduced for the cleansing of the conjunctival sac in cases of purulent ophthalmia. At the final meeting of this Section Mr. Edridge-Green read a paper on the Essentials of a Test for Color Blindness, adversely criticising the Holmgren test. He strongly advocated the use of names when testing colors. Mr. Devereux Marshall agreed that Holmgren's tests were fallacious. Mr. Gustavus Hartridge read a paper on the various preparations of silver in ophthalmic work, and gave the preference to protargol. Dr. Darier thought nitrate of silver very harmful in feeble children, and preferred constant applications of a drop of 5 per cent. protargol, and later on the nitrate of silver was useful. Mr. John A. Brown read a paper on the suprarenal gland in ophthalmology. Chloretone acted best as a preservative, but it was preferable fresh. He recommended it in hay fever and various other conditions, but he thought it very harmful in corneal ulceration. Dr. Darier read a paper on some of the latest discoveries in ophthalmic therapeutics. In glaucoma suprarenal extract diminished the tension and made the eye much less vascular. Acoine when injected subconjunctivally was a powerful anæsthetic, though it had no use when instilled only into the conjunctival sac. Dionine was useful with atropine in helping to dilate the pupil in iritis; it was also an antiseptic and analgesic and relieved the pain of acute glaucoma and iritis. Dr. Grainger thought that Jacques solution of suprarenal extract was far the best. Dionine was very useful for diagnostic purposes. Dr. Maddox agreed as to the value of suprarenal extract, especially in operations on the eye, making it avascular. Dr. Darier replied. Mr. Sydney Stephenson and Dr. George

Carpenter read a note on Tuberculosis of the Choroid. In miliary tubercle they usually found two or three spots, while in chronic tuberculosis the lesions might be multiple or single. Sometimes it might assume the form of an intraocular growth, and occasionally it might become quiescent. The President mentioned a case in which a large mass of tubercle of the choroid subsided under rest and treatment. Mr. A. S. Percival described a case he had seen. Mr. Dykes Bower suggested that some of the lesions depicted might have been of a congenital origin. Mr. Richardson Cross opened a discussion on the Varieties and Treatment of After-cataract. No method of operation would entirely prevent the formation of after-cataract. In ordinary cases a modified Bowman's needle sufficed, but the capsule should be cut and not torn. In other cases scissors should be used to cut the capsule, and as a last resort the capsule might be extracted. The President thought that a ground-down Graefe's knife was far better than a needle; Dr. Darier that great care should be taken in needling not to go deeply into the vitreous. Mr. Power described various methods he had used, but thought the less done to secondary cataract the better. Mr. Devereux Marshall thought needling a dangerous operation, but if the operation had to be done, the sooner the better. Remarks were also made by Mr. Dykes Bower, Mr. A. H. Thompson, Mr. Roll, and Mr. Cargill. Mr. Hartridge showed his capsulotomy needle. Mr. Richardson Cross replied, and stated that he always inserted his needle at the periphery when operating. Mr. H. E. Jones moved a resolution concerning the compensation of workmen after eye injuries, which was seconded by Mr. Henry Power.

BOOK REVIEWS.

EINFUEHRUNG IN DIE AUGENHEILKUNDE. von DR. J. HIRSCHBERG. (Introduction to Ophthalmology.) Second Half; First Part. With 113 Figures in the Text and a Colored Plate. [Leipzig. Georg Theime, 1901.]

This part of the eminent ophthalmic author's text-book, like the first one, noticed by us several years ago, aside from

its wealth of information, is especially brilliant in its descriptions and the simplicity and perspicuity of its language. It describes the theory of the ophthalmoscope and its practical application, including photography of the fundus. The largest part of this volume is devoted to the examination of the cornea, iris, crystalline lens and vitreous body, and to the measuring of the refraction. Numerous excellent and original illustrations are interspersed in the text.

PEMPHIGUS DES AUGES (PEMPHIGUS OF THE EYE). By DR. E. PERGENS. [Berlin, 1901. S. Karger.]

The author has in this monograph collected from literature 130 cases of this luckily rare affection of the eye and added two new observations of his own. From this material he deducts a very clear description of the symptomatology, bacteriological researches and rather ineffectual therapeutic efforts. It is an excellent monograph on this subject.

STUDIES FROM THE ROYAL VICTORIA HOSPITAL, MONTREAL. Vol. I, No. 1.

THE PRIMARY TUMORS OF THE OPTIC NERVE: FIBROMATOSIS NERVI OPTICI.

A review of the "intradural" tumors of the optic nerves so far published, to which the author adds two of his own observation. His contention is that all of these tumors are, under whatever other name they may have been described, an overgrowth of the connective tissue structures of the nerve. This statement the writer thinks is altogether too sweeping, and while an attempt to bring order into the chaos of descriptions is timely and praiseworthy, the author, it seems, is going too far in bringing all the different forms of intradural tumors of the optic nerve under the one head of fibromatosis.

MANUAL OF THE DISEASES OF THE EYE, FOR STUDENTS AND GENERAL PRACTITIONERS. By CHAS. H. MAY, M.D. Second Edition. [New York, 1901. William Wood & Co.]

It must be very gratifying to the author that already a second edition of this text-book is demanded. He has revised and enlarged the former edition and added new and valuable illustrations. ALT.

ABSTRACTS FROM MEDICAL LITERATURE.

By W. A. SHOEMAKER, M.D.

ST. LOUIS, MO.

VALIDOL IN SCOTOMA SCINTILLANS.

Neustaetter (*Die Ophthalmologische Klinik*, June 20, 1900) was very successful in the treatment of five cases of scintillating scotoma with validol in 20 drop doses. A few minutes after taking it the irregular lines became less conspicuous, then suddenly disappeared and did not return. After a little longer time the visual field was entirely clear. Subsequent attacks were promptly relieved with a single dose. In only one case was it necessary to repeat it. The author does not state whether he attributes any of the good results to the menthol in the drug, or not. He thinks it should be used in every case, as it not only removes the scotoma but also relieves headache. So far as yet known it is an entirely harmless drug.

EXTIRPATION OF THE SUPERIOR CERVICAL GANGLION OF THE SYMPATHETIC IN THE TREATMENT OF GLAUCOMA.

Ziehe and Axenfeld (*Sympathicus-Resektion Beim Glaukom*, Halle, A. S., 1901), after an admirable discussion of this subject and a complete analysis of the literature and the cases reported up to date, come to the following conclusions, which, somewhat condensed, are here reproduced:

1. Extirpation of the sympathetic—that is, extirpation of the superior cervical ganglion, as well as resection of the sympathetic nerve—in the hands of competent surgeons is a comparatively safe procedure. Among seventy-four cases of glaucoma submitted to this operation there was only one fatal result. Detriment to the eye is up to this time not positively proved.

2. If the material at present available does not suffice to pass judgment upon the durability of this procedure, it still permits it to be said that a certain number of glaucomatous eyes can be improved for many months by such resection,

while in other cases a checking of the process seems to have been obtained. It is quite impossible to prophesy that extirpation of the sympathetic will be of advantage in each case, but it is not certainly proved that it will occasionally do harm. When the operation has been followed by a good result this in the majority of cases has remained, whether permanently or not cannot be stated. It is rare that a primary improvement gives place to a late relapse.

3. Referring to the different forms of glaucoma, the following may be stated: (a) In acute inflammatory glaucoma resection is to be rejected, except when iridectomy is declined, or when on the first eye the operation has resulted badly; that is to say, when, in spite of the iridectomy, the glaucoma continues or relapses. (b) In hemorrhagic glaucoma resection is a proper procedure. (c) In chronic inflammatory glaucoma and in simple glaucoma a number of good results have been observed. Resection is therefore worthy of recommendation as a supplement to iridectomy in progressive cases.

4. Extirpation of the sympathetic for non-iridectomized eyes is, in general terms, not suitable. Resection should not, even in chronic and simple glaucoma, supplant iridectomy. Iridectomy holds the first therapeutic place. Extirpation of the sympathetic without previous iridectomy appears permissible only when iridectomy or sclerotomy is refused, when iridectomy has resulted unfortunately in one eye, in hemorrhagic glaucoma, in those cases of simple glaucoma where a very great disturbance of vision already exists; and perhaps also in hydrophthalmos, although in this disease multiple sclerotomies are to be considered.

5. In absolute glaucoma extirpation of the sympathetic is indicated only when the blindness has existed for a short time, or when the disease is affecting the last eye. If complete blindness has existed several weeks, and severe pains are present, enucleation is indicated, and only when this is declined extirpation.

6. Inasmuch as after extirpation glaucoma continues in some cases, and, furthermore, as inflammatory attacks may appear after this operation, it is wise in the after-treatment to continue myotics.

7. Whether extirpation of the sympathetic can prevent glaucoma has not been safely established.

8. Anatomical examination of the excised ganglia shows changes which, while not characteristic of glaucoma, are worthy of further investigation.

9. The final conclusion is that in all cases in which our hitherto employed therapeutic measures are not effective, extirpation of the cervical sympathetic is a measure justifiable and worthy of employment, even if improvement is not certainly to be expected from the operation.—*Oph. Record*, June, 1901.

THE OPHTHALMOSCOPIC EXAMINATION FOR KIDNEY DISEASE.

Edward Jackson (*New York Med. Journal*, July 27) urges the importance of making an ophthalmoscopic examination in all cases of nephritis, stating that pathological conditions are found in 50 per cent. of the cases and distinct albuminuric retinitis in at least ten per cent.

TOBACCO AMBLYOPIA.

C. E. Finlay (*Archives of Ophthalmology*), during a residence of eight years in Havana, treated ninety-two cases of tobacco and alcohol amblyopia. Some improved under treatment and others did not. One acute case resulted in total blindness.

He cannot endorse the opinion of many that tobacco grown in Cuba is comparatively harmless, and that Cubans do not suffer from this form of amblyopia.

REMARKS ON THE USE OF PILOCARPINE IN THE TREATMENT OF INFLAMMATIONS OF THE INTERIOR OF THE EYE.

Howard F. Hansell (*Therapeutic Gazette*, Aug. 15), as the result of an extensive experience, is a firm believer in the efficacy of profuse sweating (produced by hot baths and hypodermic injections of pilocarpine mur.) in diseases of the sclera, choroid and retina. The patients that derive the most benefit from this treatment are those suffering from rheumatism and gout. In syphilis he finds it is a most valuable adjunct to the usual local and constitutional remedies.

His method is as follows:

"A convenient hour is chosen, usually 3 P.M., and the patient is put into a bath the temperature of which ranges between 106° and 110°; during the bath he drinks a cup of hot tea. After twenty minutes immersion he is put into bed and receives a hypodermic injection of $^1/_{12}$ to $^1/_8$ grain pilocarpine muriate. The sweating begins in a few minutes, and is encouraged by hot bottles and blankets for two hours or more. Should the sweating become slight or insignificant during these two hours, the patient is given a glass of ice water, when the glands of the skin take on renewed activity. At the termination of the sweating the wet blankets are removed, fresh bedclothing substituted, and the patient left quietly in bed until the next morning, when he is allowed to be up and dressed until time for the next bath. Should he complain of exhaustion following the first bath, a hypodermic injection of $^1/_{20}$ grain strychnia is given one-half hour before the next bath. The diet should consist largely of fluids. Whatever local eye treatment the disease calls for is of course administered as indicated, and is not interfered with by the sweats."

TUBERCULOSIS OF THE CHOROID.

George Carpenter and Sydney Stephenson (*The Lancet*, July 20) give the result of their study of 49 cases. They group them clinically as follows: (1) Acute miliary tuberculosis and tuberculous meningitis; (2) chronic tuberculosis; and (3) obsolescent tuberculosis. The following conclusions are submitted: (1) Tubercle of the choroid may be met with in any form of tuberculosis. It is common in acute miliary tuberculosis and tuberculous meningitis (50 per cent. of the cases examined). The lesion was usually small, solitary, and limited to one eye. (3) It is far more common in chronic tuberculosis than is generally supposed, it being present in 9.24 per cent. of the cases examined. The lesion may be single or multiple. In very rare instances it attains great dimensions, and may perforate the eyeball. (4) It is present in a certain number of cases of quiescent tuberculosis, generally taking the form of a large, more or less pigmented area, situated in or about the center of the fundus.